REMARKS:

Claims 1 – 8, 10, and 12 – 32 are pending in the application. Claims 1 – 6 and 17 – 32 were withdrawn from consideration by the Examiner as being directed to a non-elected invention. Claims 7, 8, 10, and 12 – 16 were examined and rejected. Applicants respectfully request reconsideration and allowance of this application in view of the following remarks.

Claim Rejection – 35 U.S.C. § 103

In the Final Office Action, the Examiner maintained the rejection of claims 7, 8, 10, and 12 – 16 under 35 U.S.C. §103(a) as being unpatentable over Kanetake (US 6,303,054) in view of Economy (US 4,467,000) in further view of Hasegawa (*Structure and Properties of Novel Asymmetric Biphenyl Type Polyimides* in Macromolecules, Vol. 32, No. 2, pp. 387 – 396, 1999) and evidenced by Wilson (Polyimide, Blackie & Son Ltd., 1990, pp. 1 – 2, scheme 1.2). Applicants respectfully traverse this rejection.

The Examiner's responses to Applicants' arguments in the response filed on October 27, 2010 concerning the prior art rejection begin at the middle of page 4 of the Final Office Action. At many portions of the Examiner's remarks, the Examiner states that the Applicants' arguments are not persuasive for lack of evidence. See, for example, page 5, line 19 and page 6, lines 5 and 17 – 18 of the Final Office Action. While Applicants do not agree with this characterization of the arguments presented in the last response, Applicants are attaching a Rule 132 declaration of Dr. Naoki Nishiura ("Nishiura declaration") to this response that verifies the facts, which were presented or argued in the previous response in favor of patentability, as being known and understood by a person of ordinary skill in the art.

Applicants' independent claim 7 defines a semi-conductive aromatic amic acid composition comprising:

- an aromatic amic acid oligomer only having structural units derived from at least two aromatic tetracarboxylic acid derivatives and an approximately equimolar amount of at least one aromatic diamine;
- carbon black; and
- an organic polar solvent,
- wherein said at least two aromatic tetracarboxylic acid derivatives are a mixture of 15 to 55 mol% of asymmetric aromatic tetracarboxylic dianhydride and 85 to 45 mol% of symmetric aromatic tetracarboxylic dianhydride or a mixture of 15 to 55 mol% of asymmetric aromatic tetracarboxylic acid diester and 85 to 45 mol% of symmetric aromatic tetracarboxylic acid diester.

Applicants respectfully submit that one of ordinary skill in the art would not combine the teachings of Kanetake, Economy, Hasegawa, and/or Wilson and arrive at the presently claimed invention. As explained in the attached Nishiura declaration, there is no reason to combine Kanetake, Economy, Hasegawa, and/or Wilson to arrive at the presently claimed invention. As also explained in the attached Nishiura declaration, there are reasons for not combining these teachings. Accordingly, the presently claimed invention cannot be obvious over the combined teachings of Kanetake, Economy, Hasegawa, and/or Wilson.

As explained by Dr. Nishiura in the attached declaration the presently claimed invention, the teachings of Economy; and the teachings of Hasegawa, Kanetake, and Wilson are directed to different technologies and/or fields of technology.

Differences in the Technical Fields

The (1) presently claimed invention, the (2) teachings of Economy, and the (3) teachings of Hasegawa, Kanetake, and Wilson are directed to different technologies and/or fields of technology, which are identified below.

Material 1 – The presently claimed invention is directed to an amic acid oligomer, and a semi-conductive polyimide film produced using the amic acid oligomer.

Material 2 – In contrast to Material 1, the teachings of Economy are directed to a process for coating a substrate with a polyimide by using a composition comprising an amino-terminated amic acid oligomer and a tetracarboxylic acid diester.

Material 3 – The teachings of Hasegawa, Kanetake, and Wilson are directed to a material different from Materials 1 and 2, namely, a polyimide produced using a polyamic acid.

Material 1 – Amic Acid Oligomer, and Polyimide Produced Using the Amic Acid Oligomer

Unlike the polyamic acid of Material 3, Dr. Nishiura explains that amic acid oligomers are low molecular weight compounds. Therefore, in order to obtain a polyimide film, an "addition-condensation reaction" and an "imidization reaction" (i.e., two reactions) must be suitably performed. For example, if the "imidization reaction" progresses before sufficient progress of the "addition-condensation reaction," the "addition-condensation reaction" will no longer progress. As a result, a compound of sufficiently high molecular weight cannot be obtained, and a polyimide film having suitable properties cannot be produced.

Dr. Nishiura notes that the present inventors solved the above problem, which is specific to amic acid oligomers, by combining specific components (asymmetric and symmetric aromatic carboxylic acid components) at a specific ratio, and providing a semiconductive amic acid composition that can form the desired semiconductive polyimide film. This solution of the present inventors, as identified in the present claims, is not contemplated or suggested by the combined teachings of Kanetake, Economy, Hasegawa, and Wilson.

Material 2 – Composition Comprising Amino-Terminated Amic Acid Oligomer and Tetracarboxylic Acid Diester, and Polyimide Film Produced

The teachings of Economy disclose using a composition comprising an amino-terminated amic acid oligomer and a tetracarboxylic acid diester. As explained by Dr. Nishiura, as the tetracarboxylic acid diester, a tetracarboxylic acid diester of a specific alcohol substituted with an electron withdrawing group, such as CF_3CH_2-OH and CH_3CH_2-O-CO-CH_2-OH, is used in the invention of Economy. A polyimide having a high molecular weight is obtained by using the tetracarboxylic acid diester of the specific alcohol. Accordingly, the polyimide of Economy necessarily contains both an amino-terminated amic acid oligomer and a tetracarboxylic acid diester of the specific alcohol, which is distinguishable from the presently claimed invention.

Material 3 – Polyimide Produced Using Polyamic Acid

Dr. Nishiura further explains that polyamic acid solution composition is typically used as a precursor for producing a polyimide film. The polyimide is principally produced by an "imidization reaction." However, since polyamic acid has a relatively high molecular weight, a polyamic acid solution tends to have increased viscosity. A polyamic acid solution containing

carbon black is particularly problematic, as described on page 2, line 18 to page 3, line 11 of the Specification.

Unobviousness

As explained in the attached Nishiura declaration, *an objective of Kanetake is to produce an electrically semiconductive seamless tubular polyimide film by using a semi-conductive polyamic acid composition* that has higher storage stability and that maintains a stable electrical resistivity when molded into a molded product. To achieve this objective, *a specific carbon black is added in a specific amount to a polyamic acid.*

In contrast thereto and as explained in the attached Nishiura declaration, the *objective of Economy is to coat a substrate with a polyimide.* In order to achieve this objective, Economy *uses an amino-terminated amic acid oligomer in combination with a tetracarboxylic acid diester of a specific alcohol substituted with an electron withdrawing group.* More specifically, Economy discloses a *composition containing both an amino-terminated amic acid oligomer and a tetracarboxylic diester of a specific alcohol as essential components,* and this composition is reacted to form a polyimide film on a substrate.

Dr. Nishiura concludes that *the technical fields of the invention of Kanetake and that of Economy are clearly different and one of ordinary skill in the art would not look to one of these technical fields for modification of the other.* Dr. Nishiura continues that as stated above in the section entitled "Difference in the Technical Field," the technique of forming a coating film on a substrate by using a composition containing both an amino-terminated amic acid oligomer and a tetracarboxylic acid diester of a specific alcohol substituted with an electron withdrawing group is *completely different* from the technique of forming a tubular polyimide film by using a

polyamic acid. At least for these reasons, Applicants respectfully submit that there is no reason or no motivation for one of ordinary skill in the art to combine the teachings of Kanetake and Economy. Dr. Nishiura agrees with this conclusion in the attached declaration.

Dr. Nishiura comments, on the other hand, even if the teachings of Economy were applied to or combined with those of Kanetake, such a combination would only provide a polyimide film of a composition of an amino-terminated amic acid oligomer and a tetracarboxylic acid diester of a specific alcohol substituted with an electron withdrawing group. In the invention of Economy, the tetracarboxylic acid diester of a specific alcohol is a constituent feature indispensable for achieving the objective therein. Accordingly, one of ordinary skill in the art would not eliminate this constituent or indispensable feature because this would make it impossible to achieve the objective of Economy.

At least for these reasons, Applicants respectfully submit that the use of "an aromatic amic acid oligomer," which is a claimed feature of the present invention, would not have been obvious to a person skilled in the art from the combined teachings of Kanetake and Economy.

Further and as explained in the attached Nishiura declaration, there is no reason or motivation to combine Kanetake and Economy and arrive at the inventions defined in claims 7, 8, 10, and 12 – 16. The attached Nishiura declaration factually establishes that one of ordinary skill in the art would have had no reason to combine Hasegawa and/or Wilson with Kanetake and Economy which includes a semiconductive aromatic polyamic acid composition comprising, *inter alia*: an aromatic amic acid oligomer obtained by reacting an aromatic diamine with an aromatic tetracarboxylic acid component mixture comprising 15 to 55 mol% of an asymmetric aromatic tetracarboxylic acid component and 85 to 45 mol% of a symmetric aromatic tetracarboxylic acid component; carbon black; and an organic polar solvent.

According to the presently claimed invention, a tough polyimide film having a high yield stress and high tensile strength can be formed by reacting an aromatic diamine with an aromatic tetracarboxylic acid component mixture comprising 15 to 55 mol% of an asymmetric aromatic tetracarboxylic acid component and 85 to 45 mol% of a symmetric aromatic tetracarboxylic acid component. Applicants respectfully submit that any person skilled in the art would not have conceived of this effect from the teachings of Kanetake, Economy, Hasegawa, and Wilson either alone or combined and that the attached Nishiura declaration evidences or provides the factual basis for a conclusion of unobviousness based thereon.

At least for these reasons, Applicants respectfully submit that the inventions of present claims 7, 8, 10, and 12 – 16 would not have been obvious to a person skilled in the art over Kanetake in view of Economy, Hasegawa, and Wilson; and that the presently claimed inventions are patently distinguishable from these teachings.

Double Patenting Rejection

The Examiner provisionally rejected claims 7, 8, 10, and 12 – 16 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1 and 4 – 8 of copending application No. 12/441,980. Applicants respectfully traverse this rejection.

For the reasons set forth above, the prior art rejections of Applicants' claim should be withdrawn. Thus, there is no rejection other than the double patenting rejection in the present application at this time and the present application is otherwise in condition for allowance. In this situation, the present application should be patented and perhaps a double patenting rejection made in the copending application. The reasons for this are that U.S. patent application No. 12/441,980 (the "copending application") cited in the rejection was filed much after the filing

date of the present application. This later application has not yet been examined, and any allowable claims of the present and copending applications are still yet to be determined. Accordingly, filing a terminal disclaimer at this point in the prosecution of the present application appears premature. The filing of such a terminal disclaimer could be appropriate once the scope of the claims in the present application and those in the copending application are finalized.

Furthermore, since the present application was filed much earlier than the copending application, Applicants respectfully request the double patenting rejection be removed, so that that the present application can be patented. Thereafter, a terminal disclaimer can be filed in the copending application, if appropriate.

At least for these reasons, Applicants respectfully request that the Examiner reconsider and withdraw the double patenting rejection.

Conclusion

Applicants respectfully submit that, as described above, the cited prior art does not show or suggest the combination of features recited in the claims. Applicants do not concede that the cited prior art shows any of the elements recited in the claims. However, Applicants have provided specific examples of elements in the claims that are clearly not present in the cited prior art. In view of the foregoing, the Applicants respectfully submit that this application is in condition for allowance. A timely notice to that effect is respectfully requested.

Applicants believe that the foregoing is a complete and proper response to the Office Action mailed January 4, 2011. While it is believed that all claims in this application are in condition for allowance, if the Examiner has any comments or questions, Applicants invite the

Examiner to telephone the undersigned at the below listed number to resolve any outstanding issues.

In the event this paper is not timely filed, Applicants hereby petition for an appropriate extension of time. The fee therefore, as well as any other fees that become due, may be charged to our Deposit Account No. 50-1147.

Respectfully submitted,

/ R. Eugene Varndell, Jr./

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ATTACHMENT: Declaration under 37 CFR §1.132 by Naoki Nishiura (10 pages)